commerce and defense of the coast seem to demand them; there is the question of the places for an economical and adequate survey of the vast shore line of Alaska; the assignment of officers to make the necessary surveys for disputed State boundaries and to sit on commissions for the establishment and improvement of harbors; and there is the provision of the astronomic, the gravimetric, magnetic, hypsometric and geodetic connections which will bring into an accordant whole the different surveys which the growth of our country and our rank as a civilized people are inevitably forcing us to provide.

Our bankers and merchants scan jealously the qualifications of every man suggested for a place of responsibility connected with the conduct of the public financial policy. Does not a similar interest call upon scientific men to insist upon a worthy chief for a bureau whose results form so large a measure of the amount of merit they can claim for the value of scientific application in public affairs and of the reputation due our country for her additions to the sum total of human knowledge?

But that the desirable man may be had in this case it is necessary that the innovations in the spirit of the management in this Bureau that date from 1885 should be changed. The scientific bureaus of the government, to be properly officered, cannot be treated as part of the prey from which the victors in political wars can reward their most energetic supporters. Their chiefs will never fail in patriotic devotion to the best interests of their country because they neglect to emulate the ostentatious devotion of the man working for an office.

From the political scientist, bound by the rules of the game to suffer the vicissitudes of party strife, what can be expected but a perfunctory attention to the affairs of an office whose details his term of official life gives but little promise that he will be given sufficient time to master? If our country wishes for the reward and fame that accrued from the labors of Hassler, Bache, Maury, Henry and Baird it must perpetuate the policy that fostered their genius; the direction of the great scientific bureaus must be placed in the hands of capable men, and to these chiefs the same measure of protection must be accorded that now safeguards their subordinates. J.

THE AMERICAN MORPHOLOGICAL SOCIETY.

The seventh annual meeting of the American Morphological Society was held at the Harvard Medical School, Boston, December 29, and at the Museum of Comparative Zoology, Cambridge, December 30, 1896. The following persons were elected to membership: Dr. G. Lefevre, Johns Hopkins University; Dr. A. Schaper, Harvard Medical School; Dr. E. E. Bickford, Vassar College; Dr. W. E. Castle, Knox College; Dr. A. W. Weysse, Massachusetts Institute of Technology; Dr. A. G. Mayer, Harvard University; Dr. J. H. Gerould, Dartmouth College; Dr. H. S. Jennings, Jena; Dr. H. V. Neal, Munich; Miss Margaret Lewis, Radcliffe College; Dr. Ida Hyde, Cambridge; Mrs. G. C. Davenport, Cambridge; Dr. H. McE. Knower, Williams College; Dr. C. M. Child, Chicago University; and Dr. E. L. Rice, Allegheny College.

The following communications were presented and discussed:

The Individuality of the Cell. Arnold Graf.

The paper formulated a cellular theory opposed to the classical theory of *Schleiden* and *Schwann*, and to the Tolioplasma theory of *Nägeli* and *Whitman*, in the following terms:

1. The cell is a physiological but not a morphological unit.

2. It consists morphologically of numerous lesser units, which pertain to different categories, being specifically irritable by varying stimuli.

3. The sum total of the energies of these lesser units constitute cellular life.

4. Differentiation is caused by specific irritation of certain kinds or elementary units, instigating these to multiplication and therefore to supremacy over the other units.

5. The cell does not lead a double life; it leads only one life, namely, an independent life. There is, in fact, only one life that we know of.

6. The axiom that a function presupposes cellular structure is not proved. Structure presupposes function is more acceptable, as it may be supported by direct evidence. Cellular structure becomes more complicated if the function of the cell is more energetic.

7. Structure is a side product formed during the exchange between stimulus and reaction. (Was supported by examples from the organic and inorganic world.)

8. The elementary units of the cell are partly demonstrated in the microsomes, chromatin granules and centrosomes. The microsomes are of different kinds, some of which were demonstrated by slides.

1. *Origin of the Centrosomes in the Unfertilized Egg of Chætopterus.*

2. *The Behavior of the Centrosomes during the Maturation and Fertilization of Chætopterus.* A. D. MEAD.

There is in the egg of Chætopterus a definite body, the centrosome, which is not an artifact, and which is not identical with the centrosphere or astrosphere, though the latter is sometimes present.

In the 'oöcite of the first order,' *i. e.*, the unmaturated egg, the centrosomes arise by a modification of pre-existing cytoplasmic structures. Those of the first and succeeding cleavage spindles are identical with, or derived directly from, the male centrosomes, which are probably brought into the egg with the middle-piece of the spermatozoön.

The centrosomes, whatever their origin, are capable of growth and multiplication and persist through at least several cell generations.

There is no union of male and female centrosomes during fecundation—no 'quadrille of the centers.' The female centrosomes entirely degenerate, and therefore cannot be considered a special means for conveyance of hereditary qualities.

The centrosphere, a differentiated region about the centrosome, gives a different reaction from the centrosome, on the one hand, and the rest of the cytoplasm, on the other, both in point of color and resistance to certain reagents. Corrosive-acetic and certain other reagents will sometimes completely destroy the centrosphere, though the rays and other structures are fairly well preserved.

The centrospheres, unlike the centrosomes, appear and disappear with each succeeding karyokinesis. When they are present the cytoplasmic rays of the aster are not so strongly developed as when they have disappeared and the rays diverge directly from the centrosomes themselves.

The centrosomes divide and move apart within the centrosphere for a considerable distance without altering the spherical shape of the latter structure.

On the Origin of the Centers of the First Cleavage Spindle in Unio Complanata. F. R. LILLIE.

After the formation of the second polar body the inner centrosphere and a large part of the aster become converted into archoplasm, against which the egg nucleus lies. The archoplasm is vesicular (or reticular) in structure, and contains the centrosome, though the latter cannot be distinguished on account of the entire disappearance of radiations. The sperm nucleus